

AMENDED CLAIMS

[received by the International Bureau on 21 March 2005 (21.03.2005);
new claims 48-67 added; remaining claims unchanged]

reference orientation, said scanning directions having a predetermined angle therebetween, independently of the swimming pool's shape.

45. A cleaning robot adapted to move in a swimming pool or the like, wherein the robot is preprogrammed for performing a plurality of cleaning modes, of which at least two are selected from a group comprising:

- (a) the robot scanning the floor surface of the pool, and ascending a sidewall at predetermined time intervals;
- (b) the robot having a decreased speed and an increased suction; and
- (c) the robot executing a cycle comprising ascending a sidewall to the waterline, cleaning the waterline for a predetermined amount of time in a first direction with relation to the pool, descending the sidewall to the floor, moving along the sidewall a predetermined distance in a second direction which is opposite the first direction, ascending the sidewall, and continuing cleaning in the first direction.

46. A cleaning robot adapted to move in a swimming pool or the like, the robot being adapted to stop at a predetermined location when one or more predetermined requirements are met.

47. A cleaning robot adapted to move in a swimming pool or the like, the robot comprising an electro-mechanical drive means; the robot being adapted to detect electrical current through the drive means, whereby when the current exceeds a threshold, the robot assumes a wall impact to have occurred.

48. A cleaning robot adapted to move in a swimming pool or the like in accordance with commands from a main controller therein, the robot when in use being free of any cables connected to an external power supply, and having a body unit with a battery power pack, adapted to move along the floor and/or walls of said pool, and a tail unit comprising a head portion adapted to float on the surface of a pool, and a tethering cable attached at least in use, to the body unit; the robot comprising a means for detecting its orientation.

49. A cleaning robot according to Claim 48, wherein the means is a digital compass integrated onto the controller.

50. A cleaning robot according to Claim 48, the robot having a memory adapted to store a certain orientation of the robot, said controller being adapted to provide the robot with a command to align its orientation in accordance with the stored orientation.

5 51. A cleaning robot according to Claim 50, wherein said orientation is defined by the robot's initial orientation.

52. A cleaning robot according to Claim 48, wherein said controller is adapted to count wall detections, and wherein each time after the robot has performed a straight lap before two detections, it performs a stepped lap in which
10 the robot rotates to a predetermined angle relative to its orientation during the straight lap, within a certain period of time after the last wall detection, said period constituting a predetermined portion of the duration of the preceding straight lap, said portion undergoing a change after a predetermined number of wall detections.

15 53. A cleaning robot according to Claim 52, wherein the change is a decrease, relative to a previous value of the portion.

54. A cleaning robot according to Claim 52, wherein the change is an increase relative to a previous value of the portion.

55. A cleaning robot according to Claim 53 or 54, wherein said initial value
20 is predetermined to be not less than 1/2 of the duration of the preceding straight step, when said change is a decrease, and less than 1/2 of said duration when said change is an increase.

56. A cleaning robot according to any one of Claims 50 through 55, the controller being adapted to cause the robot to move in the pool along only two
25 scanning directions obtained by adjusting the orientation of the robot in a predetermined way relative to its reference orientation, said scanning directions having a predetermined angle therebetween, independently of the swimming pool's shape.

57. A cleaning robot according to Claim 56, wherein said predetermined
30 angle is 90 degrees.

58. A cleaning robot adapted to move in a swimming pool or the like in accordance with commands from a main controller therein, the robot when in use being free of any cables connected to an external power supply, and having a body unit with a battery power pack, adapted to move along the floor and/or walls of said pool, and a tail unit comprising a head portion adapted to float on the surface of a pool, and a tethering cable attached at least in use, to the body unit; said tethering cable being of sufficient length to allow the float of said head portion while the body unit is on the floor of the pool, wherein said tail unit further comprises a connector designed for charging batteries or battery in said battery power pack by an external charger.

59. A cleaning robot according to Claim 58, wherein the head portion is adapted to submerge below the water surface upon encountering an obstacle.

60. A cleaning robot according to Claim 58 or 59, wherein the head portion is of a geometry which minimizes the likelihood of entanglement thereof with obstacles.

61. A cleaning robot according to any one of Claims 58 through 60, wherein the head portion comprises a float user interface, and is designed such that the float user interface is disposed at or near the surface of the pool, when the tail unit is in its working position.

62. A cleaning robot according to Claim 61, wherein said tail unit further comprises at least one counter-weight adapted to maintain, at least in use, said working position of the tail unit.

63. A cleaning robot according to Claim 61, wherein said tail unit further comprises a tail unit controller.

64. A cleaning robot according to Claim 63, wherein the tail unit controller is in communication with the main controller.

65. A cleaning robot according to Claim 61, wherein the float user interface is adapted to receive user input.

66. A cleaning robot according to Claim 61, wherein said tail unit further comprises at least one data presentation device.

67. A cleaning robot according to any one of Claims 58 through 66, further comprising an external battery charger, which is connectable to the tail unit for charging at least one battery in said battery power pack in the body unit of the robot.